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AB - JP11178551 Emulsion for orange drinks is prepared by emulsifying a composition containing (A) sucrose acetic acid isobutyric acid ester, (B) an orange type perfume and (C) a 6-18C middle-chain fatty acid triglyceride in an (A):(B) wt. ratio of 100:0-56:44, a (B):(C) wt. ratio of 0:100-76:24 and an (A):(C) wt. ratio of 83:17-46:54, with aqueous solution of gum arabic. Also claimed is an emulsion for orange drinks prepared by adding 1-20 wt.%, w.r.t. the total amount of (A), (B) and (C), of elemi, dammar and rosin and emulsifying the resultant mixture with the aqueous solution of the gum. Also claimed are orange drinks consisting of a drink of Brix% of 6-14 blended with the emulsion.
- ADVANTAGE - The emulsions impart stable and durable perfume and opaque nature to orange drinks without separation, formation of neck rings and precipitation. The drinks obtained have good flavour and appearance.
- (Dwg.0/5)
IW - EMULSION ORANGE DRINK PREPARATION EMULSION COMPOSITION CONTAIN SUCROSE ACETIC ACID ISOBUTYRIC ACID ESTER ORANGE TYPE PERFUME MIDDLE CHAIN FATTY ACID TRI GLYCERIDE
IKW - EMULSION ORANGE DRINK PREPARATION EMULSION COMPOSITION CONTAIN SUCROSE ACETIC ACID ISOBUTYRIC ACID ESTER ORANGE TYPE PERFUME MIDDLE CHAIN FATTY ACID TRI GLYCERIDE
NC - 001
OPD - 1997-12-24
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PAW - (TAKS ) TAKASAGO PERFUMERY CO LTD
TI - Emulsion for orange drinks - prepared by emulsifying composition containing sucrose acetic acid isobutyric acid ester, orange type perfume and middle-chain fatty acid tri:glyceride

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(54) EMULSION FOR CITRUS-FLAVORED DRINKS

(57) ABSTRACT

**Purpose:** The purpose of the present invention is to produce a stable emulsion for citrus-flavored drinks with an absence of separation, neck ring and precipitation after long-term storage and having good taste, flavor, and appearance.

**Means of solution:** An emulsion for citrus-flavored drinks containing at least (A) sucrose acetate isobutyrate, (B) citrus flavor and (C) medium-chain fatty acid triglyceride with 6-8 carbon atoms, in which an emulsification treatment is performed for a composition having the composition ratio (weight ratio) of the above-mentioned components (A), (B) and (C) that satisfies (A):(B)=100:0 to 56:44, (B):(C)=0:100 to 76:24 and (A):(C)=83:17 to 46:54 at the same time.

## CLAIMS

1. An emulsion for citrus-flavored drinks containing at least (A) sucrose acetate isobutyrate, (B) citrus flavor and (C) medium-chain fatty acid triglyceride with 6-8 carbon atoms, in which an emulsification treatment is performed for a composition having the composition ratio (weight ratio) of the above-mentioned components (A), (B) and (C) that satisfies (A):(B)=100:0 to 56:44, (B):(C)=0:100 to 76:24 and (A):(C)=83:17 to 46:54 at the same time.

2. An emulsion for citrus-flavored drinks containing at least (A) sucrose acetate isobutyrate, (B) citrus flavor and (C) medium-chain fatty acid triglyceride with 6-8 carbon atoms, and having the composition ratio (weight ratio) of the above-mentioned components (A), (B) and (C) that satisfies (A):(B)=100:0 to 56:44, (B):(C)=0:100 to 76:24 and (A):(C)=83:17 to 46:54 at the same time, 1 to 20 wt% of one type, or two or more different types of resins selected from the group consisting of elemi, dammar and rosin, added for the total amount of the above-mentioned components (A) to (C) and emulsification is performed with an aqueous solution of gum arabic.

3. A citrus-flavored drink in which the emulsion for citrus-flavored drinks described in Claim 1 is mixed with a drink with a Brix degree (Brix %) of 6 to 14.

4. A citrus-flavored drink in which the emulsion for citrus-flavored drinks described in claim 2 is mixed with a drink with a Brix degree (Brix %) of 6 to 14.

## DETAILED DESCRIPTION OF THE INVENTION

[0001]

TECHNICAL FIELD OF THE INVENTION

The present invention pertains to an emulsion for citrus-flavored drinks, and the invention further pertains to an emulsion for citrus-flavored drinks that provides good flavor and stable mixing state with an absence of separation, neck ring, and precipitation after long-term storage and having good taste, flavor, and appearance.

[0002]

PRIOR ART

In order to improve the flavor of emulsion for citrus-flavored drinks and to enhance natural taste, spices are used. However, spices are oil-soluble materials and drinks are water-soluble materials, thus, upon mixing of the above-mentioned oil-soluble materials and water-soluble materials, a method, in which an adjustment is made for specific gravity of the oil-soluble material ahead of time to form an emulsion uniformly mixed with an emulsifier, and drinks are subsequently added is used. However, basically, it is a mixture of an oil-soluble material and water-soluble material, thus, separation and formation of neck ring occur after long-term storage. Also, when a sucrose acetate isobutyrate (sucrose acetate isobutyrate, hereinafter referred to as SAIB.) is used as a specific gravity modifier precipitation of the SAIB occur in some cases. Therefore, as a means to prevent separation and neck ring, use of a specific gravity modifier (SAIB) and a specific oil or flavor, etc. is known. For example, a flavor composition for drinks that includes SAIB as a specific gravity modifier and sorbitol, sorbitan, or a sorbide ester of a fatty acid with 8-14 carbon atoms as an emulsifier in addition to the flavor oil and medium-chain fatty acid triglyceride (Medium chain triglyceride, hereinafter referred to as MCT OIL) with a 6-12 carbon atoms is known (Japanese Kokoku [Examined] Patent Application No. Sho 52[1977]-35746). In addition, an emulsifying drink composition containing a triglyceride fatty acid and sucrose used as a specific gravity modifier at a ratio of 250:1 to 1:2 is known (United States Patent No. 4705691). Furthermore, as a means to prevent precipitation of SAIB, an adjustment is made in the specific weight of the emulsifying flavor. Furthermore, it is known that the specific gravity of the emulsifying flavor can be reduced by approximately 0.015 to 0.02 compared to the specific gravity of the drink. (Flavoring Technology, Keijiroh Hayashi, published August 1, Sho 48 [1973]).

[0003]

PROBLEMS TO BE SOLVED BY THE INVENTION

However, it is necessary to use a surfactant with a corresponding HLB (balance between hydrophilic property and lipophilic property) with the oil-soluble material used in an emulsifier that utilizes a specific gravity modifier as SAIB, and an ester of sorbitol, sorbitan, or sorbide as an emulsifier. Furthermore, depending on the composition, a ring is likely to form in an emulsifying drink composition containing a triglyceride fatty acid and sucrose used as a specific gravity modifier at a ratio of 250:1 to 1:2. In this case, ring means formation of floating materials on the surface that adsorb to the wall surface to form a ring when a drink is filled in a bottle and stored. Furthermore, it is also known that complete prevention of precipitation of SAIB in a drink where the specific gravity of the emulsifying spice is reduced by approximately 0.015 to 0.02 compared to the specific gravity of the drink is not possible and precipitation occurs in some cases.

[0004]

Based on the above background, an emulsion for citrus-flavored drinks that provides good flavor and stable mixing state with an absence of separation, neck ring, and precipitation after long-term storage and having good taste, flavor, and appearance has been demanded for a long time.

[0005]

PROBLEMS TO BE SOLVED BY THE INVENTION

As a result of much research conducted by the present inventors in an effort to produce emulsion for citrus-flavored drinks with good taste, natural flavor, and appearance, it was discovered that the above-mentioned purpose can be achieved by a specific flavor composition, and as a result, the present invention was accomplished.

[0006]

In other words, the present invention is as described below.

Claim 1. An emulsion for citrus-flavored drinks containing at least (A) sucrose acetate isobutyrate, (B) citrus flavor and (C) medium-chain fatty acid triglyceride with 6-8 carbon atoms, in which an emulsification treatment is performed for a composition having the composition ratio (weight ratio) of the above-mentioned components (A), (B) and (C) that satisfies (A):(B)=100:0 to 56:44, (B):(C)=0:100 to 76:24 and (A):(C)=83:17 to 46:54 at the same time.

Claim 2. An emulsion for citrus-flavored drinks containing at least (A) sucrose acetate isobutyrate, (B) citrus flavor and (C) medium-chain fatty acid triglyceride with 6-18 carbon

atoms, and having the composition ratio (weight ratio) of the above-mentioned components (A), (B) and (C) that satisfies (A):(B)=100:0 to 56:44, (B):(C)=0:100 to 76:24 and (A):(C)=83:17 to 46:54 at the same time, 1 to 20 wt% of one type, or two or more different types of resins selected among the group consisting of elemi, dammar, and rosin is added for the total amount of the above-mentioned components (A) to (C) and emulsification is performed with an aqueous solution of gum arabic.

Claim 3. A citrus-flavored drink in which the emulsion for citrus-flavored drinks described in Claim 1 is mixed with a drink with a Brix degree (Brix %) of 6 to 14.

Claim 4. A citrus-flavored drink, in which the emulsion for citrus-flavored drinks described in Claim 2 is mixed with a drink with a Brix degree (Brix %) of 6 to 14.

[0007]

EMBODIMENT OF THE INVENTION

In the following, the present invention is explained in further detail. In the SAIB used in the present invention, two sucrose hydroxyl groups of are esterified with acetic acid groups groups and six hydroxyl groups are esterified with isobutyrate groups, and all eight hydroxyl groups are substituted with fatty acids. As a result, high solubility with purified oils can be achieved and can be used effectively when a flavor is added to febrifuges as a specific gravity modifier.

[0008]

Furthermore, MCT OIL does not include double bonds, thus, oxidation stability is high and exhibits excellent physical properties such as low viscosity and low coagulation pattern as well as good physiological properties such as low cholesterol. Thus, the above-mentioned properties are utilized and the material is used for food coloring, dilution of colorants, etc. The MCT OIL used in the present invention is a triglyceride comprised of a combination of saturated monocarboxylic acids with 6 to 8 carbon atoms, preferably, 6 to 12 carbon atoms, and is a vegetable food oil that utilizes a coconut oil or palm oil as a raw material.

[0009]

The citrus flavor used in this case is not especially limited as long as a citrus oil (citrus flavor), and either natural flavors or formulated flavors may be used. For citrus oils, for example, tangerine oil, orange oil, lemon oil, grapefruit oil, lime oil, yuzu [Chinese lemon] oil, mandarine orange oil, etc. can be mentioned. Furthermore, one type or two or more different types of the above-mentioned citrus oils may be mixed and used in combination in this case. Furthermore, a part or all of the terpene oil may be removed from the above-mentioned citrus oils and used.

[0010]

As described in Claim 2, one type, or two or more different types of resins selected from the group consisting of elemi, dammar, and rosin may be mixed with the above-mentioned components. The resin used in this case is a natural resin, and the mixing ratio is in the range of 1 to 20 wt% for the total amount of the above-mentioned components (A) to (C). When an amount that exceeds the upper limited of the above-mentioned range is added, formation of a ring occurs when mixing of the emulsifier with a drink is performed. When an appropriate amount of the above-mentioned resin is added, an adjustment can be made for the degree of the turbidity, or milkiness, of the emulsifying flavor.

[0011]

The gum arabic used as an emulsifier is used in the form of an aqueous solution after removing impurities. Among emulsifiers used for food, an aqueous solution of gum arabic is the most desirable to be used in an emulsion for citrus-flavored drinks from the standpoint of long-term stability of flavor and turbidity and absence of separation and neck ring or precipitation, and furthermore, good taste, natural flavor, and appearance.

[0012]

Furthermore, it is desirable for the mixing ratio of the components (A), (B) and (C) in the composition of the present invention to satisfy the weight ratio of (A):(B) of 100:0 to 56:44, (B):(C) of 0:100 to 76:24, and (A):(C) of 83:17 to 46:54 at the same time, and it is further desirable when the weight ratio of (A):(B) of 100:0 to 56:44, (B):(C) of 0:100 to 54:56 and (A):(C) of 60:40 to 46:54 at the same time. The above-mentioned relationship is shown in Figure 1 and Figure 2, and the area surrounded by the solid line in Figure 1 represents a desirable range, and the area surrounded by the solid line in Figure 2 represents a further desirable range.

[0013]

Natural coloring matter (β-carotene, paprika pigment, annatto dye, chlorophyll, etc.), oil-soluble vitamins (liver oil, vitamin A oil, vitamin B2, butyrate, natural vitamin E complex, etc.), polyhydric alcohols (saccharides such as glycerol, propylene glycol, sorbitol, maltitol, dextrin, starch syrup, saccharose, oligosaccharide, fruit sugar, maltose, lactose and trehalose), acid flavors (citric acid, sodium citrate, etc.), antioxidants (vitamin C, etc.), etc. may be added to the above-mentioned composition, as needed.

[0014]

The type of drink used in the present invention is not especially limited, and for example, carbonated drinks, fruit drinks, flavored drinks, health drinks, mineral waters, sports drinks, etc. can be included. The Brix degree (Brix %) means the degree of sugar based on the value obtained by measuring the soluble solid components (organic acids such as sugar component and citric acid, amino acid, and other materials dissolved in water) by a sugar refractometer (oligometer), and basically is the wt% of the saccharose, and is used as the concentration % of the soluble solid materials included in an aqueous solution. The Brix degree of the drinks containing the emulsifier of the present invention is preferably in the range of 6 to 14, and in the range of 8 to 14 is further desirable.

[0015]

The amount of the citrus emulsifying flavor of the present invention added to drinks is determined according to the purpose, etc., and preferably, in the range of 0.01 to 0.5%. It is further desirable when 0.05 to 0.2% is added from the standpoint of adjustment of the turbidity and intensity of the flavor. As described above, the emulsifier containing the flavor is an oil-soluble material, and drinks are water-soluble materials, thus, an appropriate mixing device is used for mixing the two. As an example of the device used in this case, a high-pressure homogenizer can be used effectively. The above-mentioned device is a device used for fine dispersion of different liquid particles in a liquid to produce a uniform emulsion, and the mixed solution is injected through a very narrow space under high pressure (50 to 300 $kg/cm^2$) through a valve that utilizes a spring, etc. and emulsification is achieved based on the high shear force.

[0016]

WORKING EXAMPLES

In the following, the present invention is explained further in specific terms with working examples below, but the present invention is not limited to working examples in any way.

WORKING EXAMPLE 1

(1) Production of emulsifying flavor

Component (A), sucrose acetate isobutyrate (product name: SAIB, product of Eastman Kodak Co.) (50 g), component (B), orange oil (16.7 g), component (C), MCT OIL (product name: Panasate [transliteration] 810, product of Ogi Chemical Co.) (33.3 g) and elemi resin (2.0 g) were poured into a beaker with a capacity of 200 milliliters and were dissolved under heat. Meanwhile, gum arabic (250 g) and water (648 g) were added to a beaker with 1 liter capacity and dissolution took place under heat and sterilization was performed. The dissolved material in

the aforementioned beaker with a capacity of 200 milliliters was added to the above-mentioned gum arabic solution and stirring was performed for 30 minutes at a rate of 5000 to 12000 rpm. Furthermore, a treatment was performed under a condition of 100 to 300 $kg/cm^2$ by a high-pressure homogenizer to produce an emulsion.

[0017]

(2) Production of citrus-flavored drink and bottling safety test

2 g of citric acid was added to 80 g, 100 g, 120 g or 140 g of granulated sugar and water was added to each to form 1000 g and produced syrup with Bx 8, 10, 12 or 14. Subsequently, 0.1% of the emulsion produced in (1) above to each syrup, and the syrup was poured into a transparent bottle and was sterilized for 20 minutes at a temperature of 80°C. Furthermore, they were chilled to produce citrus-flavored drinks. The drinks produced were stored at room temperature for 3 months and change with time was examined. And the results obtained are shown in Table 1 and Figure 3 below.

[0018]

[Table 1]

| No. | | (A) SAIB (g) | (A) SAIB (%) | (B) Flavor (g) | (B) Flavor (%) | (C) MCT (g) | (C) MCT (%) | Resin Type | Resin Amount added for (A)-(C) (g) | Resin Amount added for (A)-(C) (%) | Total (g) | Change with time 6 | 8 | 10 | 12 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Working examples | 1 | 5.0 | 50.0 | 1.67 | 16.7 | 3.33 | 33.3 | Elemi | 0.2 | 2.0 | 10.2 | – | – | – | – | – |
| | 2 | 4.84 | 48.4 | 1.16 | 11.6 | 4.0 | 40.0 | Rosin | 0.2 | 2.0 | 10.2 | – | – | – | – | – |
| | 3 | 4.3 | 43.0 | 2.85 | 28.5 | 2.85 | 28.5 | Rosin | 0.5 | 5.0 | 10.5 | – | – | – | – | – |
| | 4 | 4.9 | 51.3 | 1.05 | 11.0 | 3.6 | 37.7 | Elemi | 0.45 | 4.7 | 10.0 | – | – | – | – | – |
| | 5 | 4.7 | 51.6 | 0.75 | 8.2 | 3.65 | 40.2 | Elemi | 0.9 | 9.8 | 10.0 | – | – | – | – | – |
| | 6 | 4.6 | 50.0 | 1.5 | 16.3 | 3.1 | 33.7 | Dammar | 0.8 | 8.7 | 10.0 | – | – | – | – | – |
| | 7 | 4.45 | 46.3 | 2.2 | 22.9 | 2.95 | 30.8 | Rosin | 0.4 | 4.2 | 10.0 | – | – | – | – | – |
| | 8 | 4.3 | 46.2 | 2.15 | 23.1 | 2.85 | 30.7 | Rosin | 0.7 | 7.5 | 10.0 | – | – | – | – | – |
| | 9 | 4.0 | 46.0 | 2.0 | 23.0 | 2.7 | 31.0 | Rosin | 1.3 | 14.9 | 10.0 | – | – | – | – | – |
| | 10 | 6.7 | 51.5 | 0.1 | 0.8 | 6.2 | 47.7 | Elemi | 0.5 | 3.8 | 13.5 | – | – | – | – | – |
| | 11 | 5.0 | 45.4 | 2.0 | 18.2 | 4.0 | 36.4 | Rosin | 0.6 | 5.5 | 11.6 | – | – | – | – | – |
| | 12 | 6.5 | 58.0 | 0.2 | 1.8 | 4.5 | 40.2 | Elemi | 0.8 | 7.1 | 12.0 | – | – | – | – | – |
| | 13 | 4.0 | 47.0 | 1.5 | 17.6 | 3.0 | 35.4 | Elemi | 1.5 | 17.6 | 10.0 | – | – | – | – | – |
| | 14 | 4.95 | 49.5 | 0.1 | 1.0 | 4.95 | 49.5 | Elemi | 0.3 | 3.0 | 10.3 | – | – | – | – | – |
| | 15 | 4.5 | 45.0 | 0.55 | 5.5 | 4.95 | 49.5 | Dammar | 0.5 | 5.0 | 10.5 | – | – | – | – | – |
| Comparative examples | 1 | 7.5 | 75.0 | 2.5 | 25.0 | 0 | 0 | Rosin | 2.5 | 25.0 | 12.5 | + | + | + | + | + |
| | 2 | 3.75 | 50.0 | 3.75 | 50.0 | 0 | 0 | Elemi | 2.5 | 33.0 | 10.0 | + | + | + | + | + |
| | 3 | 5.45 | 54.5 | 3.65 | 36.5 | 0.9 | 9.0 | Rosin | 1.0 | 10.0 | 11.0 | + | + | + | + | + |
| | 4 | 6.0 | 66.7 | 2.0 | 22.2 | 1.0 | 11.1 | Elemi | 1.0 | 11.1 | 10.0 | + | + | + | + | + |
| | 5 | 5.7 | 62.6 | 2.5 | 27.5 | 0.9 | 9.9 | Rosin | 0.9 | 9.9 | 10.0 | + | + | + | + | + |
| | 6 | 5.0 | 60.2 | 2.5 | 30.1 | 0.8 | 9.7 | Dammar | 1.7 | 20.5 | 10.0 | + | + | + | + | + |
| | 7 | 4.0 | 40.0 | 3.6 | 36.0 | 2.4 | 24.0 | Elemi | 0.2 | 2.0 | 10.2 | R | R | R | R | R |
| | 8 | 3.0 | 30.0 | 3.1 | 31.0 | 3.9 | 39.0 | Rosin | 0.2 | 2.0 | 10.2 | R | R | R | R | R |
| | 9 | 1.5 | 15.0 | 5.5 | 55.0 | 3.0 | 30.0 | Elemi | 0.5 | 5.0 | 10.5 | R | R | R | R | R |
| | 10 | 4.0 | 40.0 | 4.8 | 48.0 | 1.2 | 12.0 | Rosin | 0.5 | 5.0 | 10.5 | R | R | R | R | R |
| | 11 | 7.0 | 70.0 | 1.2 | 12.0 | 1.8 | 18.0 | Dammar | 1.5 | 15.0 | 10.5 | + | + | + | + | + |
| Comparative examples | 12 | 0.04 | 0.4 | 2.5 | 24.9 | 7.5 | 74.7 | Elemi | 0.5 | 5.0 | 10.54 | R | R | R | R | R |
| | 13 | 0.2 | 2.0 | 2.5 | 24.5 | 7.5 | 73.5 | Rosin | 0.5 | 4.9 | 10.7 | R | R | R | R | R |
| | 14 | 2.0 | 16.7 | 1.0 | 9.3 | 9.0 | 75.0 | Elemi | 1.0 | 8.3 | 13.0 | R | R | R | R | R |
| | 15 | 2.0 | 16.7 | 2.5 | 20.8 | 7.5 | 62.5 | Rosin | 1.0 | 8.3 | 13.0 | R | R | R | R | R |
| | 16 | 3.0 | 25.0 | 1.0 | 8.3 | 8.0 | 66.7 | Elemi | 1.0 | 8.3 | 13.0 | R | R | R | R | R |
| | 17 | 3.0 | 25.0 | 5.0 | 41.7 | 4.0 | 33.3 | Elemi | 1.5 | 12.5 | 13.5 | R | R | R | R | R |
| | 18 | 4.0 | 33.3 | 2.0 | 16.7 | 6.0 | 50.0 | Rosin | 2.0 | 16.7 | 14.0 | R | R | R | R | R |
| | 19 | 4.0 | 33.3 | 4.0 | 33.3 | 4.0 | 33.4 | Dammar | 1.5 | 12.5 | 13.5 | R | R | R | R | R |
| | 20 | 4.0 | 40.0 | 4.0 | 10.0 | 2.0 | 20.0 | Dammar | 0.5 | 5.0 | 10.5 | R | R | R | R | R |
| | 21 | 6.0 | 44.4 | 5.0 | 37.0 | 2.5 | 18.6 | Rosin | 1.0 | 7.4 | 14.5 | R | R | R | R | R |
| | 22 | 7.0 | 66.7 | 2.2 | 20.9 | 1.3 | 12.4 | Elemi | 1.0 | 9.5 | 11.5 | + | + | + | + | + |
| | 23 | 7.0 | 66.7 | 3.0 | 28.5 | 0.5 | 4.8 | Elemi | 1.5 | 14.3 | 12.0 | + | + | + | + | + |

Notes (1) The % for SAIB, flavor, and MCT is the percentage of the said three components.

(2) The % for elemi and rosin is the ratio for the three components of SAIB, flavor, and MCT.

(3) –: No change observed
+: Formation of precipitate occurred
R: Formation of rings occurred

(4) An aqueous solution of gum arabic is added and an adjustment is made for the amount of the water to form 25% of gum arabic and for the total amount to form 100.0 g when (A), (B), (C) and resin total amount (Z) is added.

[0019]

As shown in the Figure, the composition ratio of components (A) to (C) of the emulsions produced in the above-mentioned (1) is inside the range in the "desirable area". Furthermore, as shown in the Table, formation of a ring and precipitation were absent in each drink with Brix number of 8 to 14.

[0020]

WORKING EXAMPLES 2 TO 15

The amount of components (A) to (B) that comprise the emulsion, and the type of resin and amount used were changed and production of each citrus-flavored drink was carried out according to the method described in Working Example 1, and each citrus-flavored drink produced was stored under the condition described in Working Example 1 and change with time was examined as above. And results obtained are shown in Table 1 and Figure 3. As shown in the Figure, the composition ratio of components (A) to (C) of the emulsions used in the working examples is inside the range of "desirable area", and furthermore, formation of rings and precipitation was absent in all citrus-flavored drinks.

[0021]

COMPARATIVE EXAMPLES 1 TO 11

The amount of components (A) to (B) that comprise the emulsion, and the type of resins and amount used were changed and production of each citrus-flavored drinks was carried out according to the method described in Working Example 1, and each citrus-flavored drink produced was stored under the conditions described in Working Example 1 and change with time was examined as above. And the results obtained are shown in Table 1 and Figure 4. As shown in Figure 4, the composition ratio of the components (A) to (C) in the emulsions added to drinks are all outside the range of the desirable area. Therefore, as shown in Table 1, formation of rings or precipitation was observed in drinks of each Brix number. As shown in the result obtained above, when the composition ratio of the components (A), (B) and (C) is outside the specification of the present invention, formation of precipitation and rings are observed. Furthermore, when the amount of resin added exceeds 20 wt% of the sum of components (A), (B) and (C), precipitation is observed.

[0022]

COMPARATIVE EXAMPLES 12 TO 23

Sucrose acetate isobutyrate (product name: SAIB, product of Eastman Kodak Co.) was used as component (A), MCT OIL (product name: Panasate [transliteration] 810, product of Ogi Chemical Co.) was used as component (C), and an orange oil was used as component (B) as in the case of Working Example 1, and each component was used at the ratio shown in Table 1 (the ratio described in United States Patent No. 4705691, namely, components (A):(C) of 250:1 to 1:2) and the citrus-flavored drinks produced according to the method described in working example 1 were stored under the conditions described in Working Example 1 and change with time was examined as above. The results obtained are shown in Table 1 and Figure 5. As shown in Figure 5, the composition ratio of the components (A) to (C) in the emulsions added to drinks are all outside the range of the desirable area, and formation of rings or precipitation were observed in all drinks as shown in the Table.

[0023]

TEST EXAMPLE 1

Measurement of transmittance

Formulation was performed for 1.0 g of emulsified flavor produced in Working Example 1 with water to form 1000 ml, and measurement was performed for the transmittance (T%) and refraction ($D_{20}$) at 600 nm by 1 cm cell. In this case, the refractivity was performed for the oil-soluble material before adding the gum arabic. And the results obtained are shown in Table 2.

[0024]

TEST EXAMPLE 2

Instead of 2% (0.2 g) of elemi resin, a predetermined amount of resins shown in Table 2 was added and production of emulsions was performed as in the case of Working Example 1. Measurement of transmittance and refractivity was performed for the above-mentioned emulsions as in the case of Test Example 1. And the results obtained are shown in Table 2.

[0025]

[Table 2]

| Test example | Type of resin | Amount added for sum of components (A) to (C) (%) | Transmittance (T%) | Refractivity (D20) |
|---|---|---|---|---|
| 1 | Elemi | 20 | 45.4 | 1.467 |
| 2-1 | Elemi | 10 | 46.8 | 1.463 |
| 2-2 | Elemi | 1 | 58.5 | 1.457 |
| 2-3 | Rosin | 10 | 54.5 | 1.467 |
| 2-4 | Rosin | 10 | 54.5 | 1.463 |
| 2-5 | Rosin | 1 | 57.5 | 1.457 |
| 2-6 | Dammar | 20 | 45.9 | 1.467 |
| 2-7 | Dammar | 10 | 47.1 | 1.464 |
| 2-8 | Dammar | 1 | 57.2 | 1.457 |

[0026]

As shown in the results obtained above, the transmittance is reduced when a resin is added as a component of an emulsion. In other words, the turbidity of the emulsion is increased.

[0027]

COMPARATIVE EXAMPLE 24

Instead of an aqueous solution of gum arabic, sugar alcohol (225 g) was used and production of an emulsifying flavor and a variety of citrus-flavored drinks (Bx. 6 to 14) was performed according to Working Example 1, and bottle test of each drink was performed, and as a result, ring formation was observed at Bx for all ranges of 6 to 14.

[0028]

COMPARATIVE EXAMPLE 25

Instead of an aqueous solution of gum arabic, xanthan gum (1.5 g) was used and production of an emulsifying flavor and a variety of citrus-flavored drinks (Bx. 6 to 14) was carried out according to Working Example 1, and bottle test of each drink was performed, and as a result, precipitation was observed at Bx. 6 to 8 and ring formation was observed at all Bx in the range of 8 to 14.

[0029]

EFFECT OF THE INVENTION

According to the present invention, a stable emulsion for citrus-flavored drinks with an absence of separation, neck ring, and precipitation after long-term storage and having good taste, flavor, and appearance can be produced.

## BRIEF DESCRIPTION OF THE FIGURES

[Figure 1] The composition ratio of components (A) to (C) in the emulsion of the present invention.

[Figure 2] A suitable composition ratio of components (A) to (C) in the emulsion of the present invention.

[Figure 3] The composition ratio of components (A) to (C) in the drinks of Working Examples 1 to 15.

[Figure 4] The composition ratio of components (A) to (C) in the drinks of Comparative Examples 1 to 11.

[Figure 5] The composition ratio of components (A) to (C) in the drinks of Comparative Examples 12 to 23.

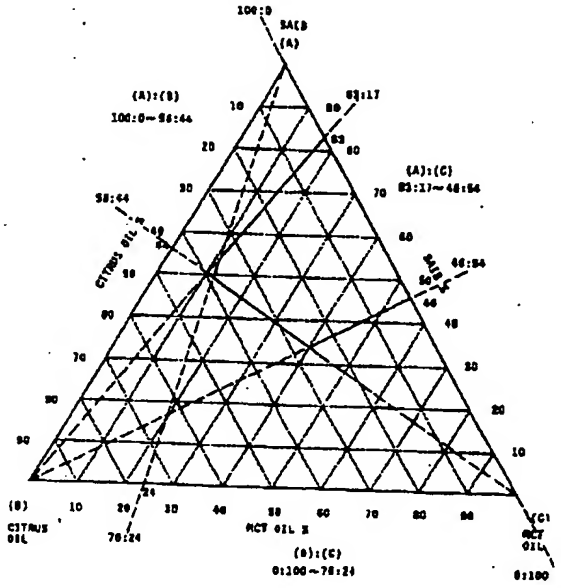

Figure 1

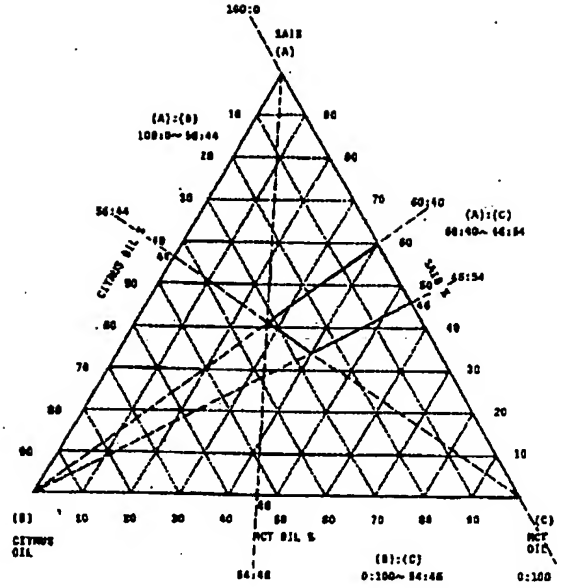

Figure 2

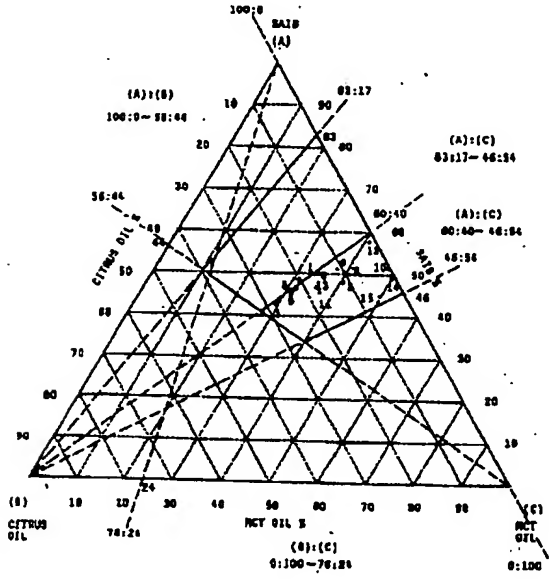

Figure 3

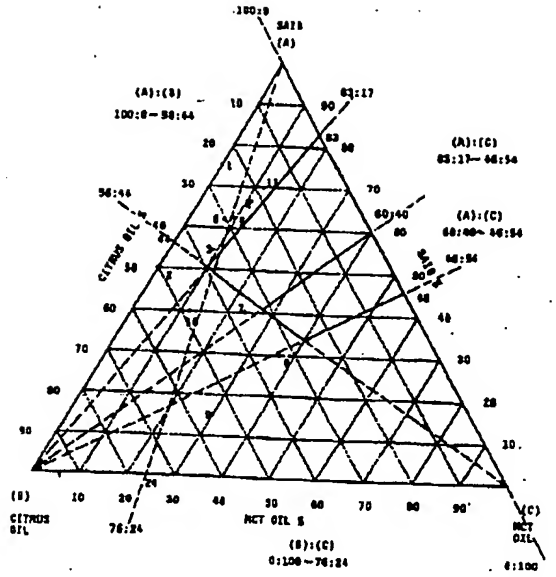


Figure 4

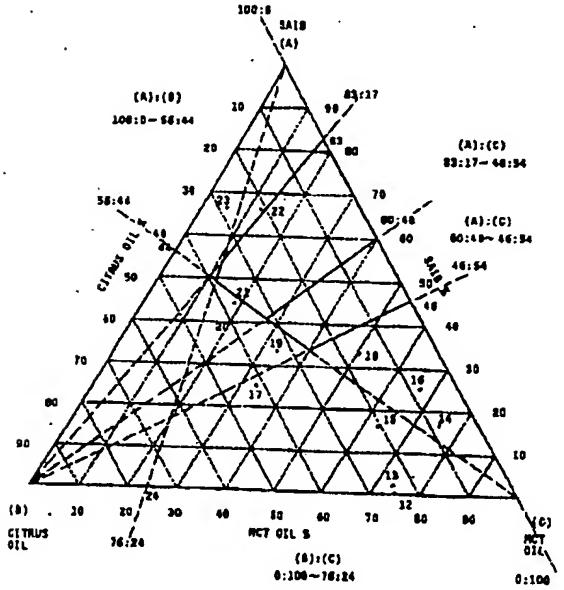


Figure 5

PHOENIX

TRANSLATIONS

*...the height of Excellence...*

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